The American Folklife Center at the Library of Congress
presents
the Benjamin Botkin Folklife Lecture Series

The Folklore Behind Ecology, or Why Scientists in Ecology Need Help from Folklorists

Lecture by Daniel B. Botkin, Professor Emeritus, Department of Ecology, Evolution, and Marine Biology, University of California, Santa Barbara

Wednesday
April 5, 2006
6:30 PM - 7:30 PM

FREE AND OPEN TO THE PUBLIC

Room 119
1st Floor of the Thomas Jefferson Building
Library of Congress
10 First Street, SE
Washington, DC

Closest Metro Stop: Capitol South (orange and blue lines), First & C Streets, SE, located one block south of the Jefferson Building

Request ADA accommodations five days in advance at (202) 707-6362 or ADA@loc.gov
For more information contact Thea Austen 202-707-1743

The Folklore Behind Ecology, or Why Scientists in Ecology Need Help from Folklorists

One of the most famous stories in wildlife conservation is about the demise of mule deer on the north rim of the Grand Canyon in Arizona, which happened soon after the turn of the twentieth century. According to an account made famous by the great American conservationist Aldo Leopold, the deer population exploded, ate and thereby destroyed the trees and shrubs that were their food, then starved.

Leopold blamed the problem on "overcontrol" of the deer's major predator, the North American mountain lion, which he believed had kept the deer population in check so that the two species had existed in a natural balance. Leopold should have known; he is considered the father of the science of wildlife management, and he was one of the major figures in that predator control. Leopold presented "scientific" data to defend his point that the deer population was in trouble because its control, the mountain lion, had been removed. "In the end, the bones of the hoped-for deer herd, dead of its own too-much, bleach with the bones of dead sage, or molder under the high-lined junipers," Leopold wrote poetically.

A very nice story. The only problem is, it wasn't true. Not as science, anyway. There was no scientific evidence, of the kind that Leopold claimed, to back it up. A careful study by a late-twentieth-century ecologist, Graeme Caughley, showed that Leopold had three sets of information on which to base his conclusions. Two of them suggested that the deer population had not gone through any major change. The third suggested that even if there was a change, it was just as likely due to competition with domestic sheep, or the result of changes in vegetation due to natural wildfires. Caughley showed that Leopold carefully selected data from what was available to defend his conclusion.

Of course, this is not how science is supposed to work. The question, then, is: why would Leopold promote a story that had no scientific substance and pass it off as science and as true?

I propose the following answer: it is commonly believed among ecological scientists and conservationists that predators like mountain lions play a crucial role in nature, controlling the numbers of their prey so that nature goes along as a smooth-running machine in balance and harmony. It is a topic that has been discussed and reaffirmed since the ancient Greeks. In those days, the question was: If perfect gods or a perfect God made nature, why would he make predators — "vile and venomous creatures," as it was often put? This belief acts as a bias in the writings of many ecological scientists, causing them to see patterns in their data that are not warranted.

Thomas Derham, a famous eighteenth-century theologian, puzzled about the existence of predators, along with the nature of nature. He concluded that there was a "very remarkable act of the Divine providence, that useful creatures [like sheep and deer] are produced in great plenty, while creatures less useful, or by their voracity pernicious, have commonly fewer young, or do seldomer bring forth." (He mentioned snakes and condors in his list.) This, then, was the mechanism that maintained the "balance of the animal world," which is "throughout all ages, kept even." It is "by a curious harmony and a just proportion between the increase of all animals and the length of their lives, the world is through all ages well, but not over-stored." Derham, a prescientific theologian, of course had no valid scientific evidence for this remarkable claim. It is not a scientific conclusion, but a folk-story, a myth, a part of Western religions, written down since the Greeks and Romans.

Much that passes as modern science about wildlife, fish, forests, and all living natural resources turns out to be a restatement of ancient Greek and Roman myths and early Judeo-Christian theology, founded in a belief in a great balance of nature. There's a lot of folklore in ecological science. What this means — and the purpose of my talk — is that ecological scientists need the help of folklorists, so that they can understand the difference between science and folklore.

DANIEL B. BOTKIN
Professor Emeritus
Department of Ecology, Evolution, and Marine Biology
University of California, Santa Barbara